STATEMENT OF WORK

1. BACKGROUND. The Defense Energy Support Center (DESC) experiences a number of fuel and related products quality problems whose causes cannot be identified through routine specification testing. It is suspected that most of these problems are related to changes in the petroleum industry. New crude sources, heavier crudes and feedstocks, increased severity of refining conditions, the wide-spread use of hydro and catalytic cracking systems, and environmental regulation compliance are among those reasons thought to be underlying these new quality problems. Specific examples of significant problems that DESC encounters include filtration time, long-term storage stability, and thermal stability.

Until such time as research efforts yield specification requirements that reflect these changes, the need exists for laboratory testing services that provide the capability to perform detailed investigations and analyses of the chemical properties of specific fuel samples using state-of-the-art methods of analysis. The goal of this program is to establish a select group of laboratory testing facilities (limited to three) contracted to identify the cause(s) of problems as indicated above with the outcome determining methods of correction, the product's suitability for use and/or possible disposition.

2. SCOPE OF WORK. The thrust of the analysis should be to identify the specific chemical and/or physical components of the product responsible for the problem in question and, if possible, recommend workable solutions.

All laboratories shall be able to perform complete analyses on petroleum and related products per applicable U.S. Government and commercial specifications and standards, to include but not limited to the following:

- Aviation Turbine Fuels
- Gasolines
- Middle Distillates (Diesel Fuel, Kerosene, Fuel Oils)
- Residual Fuel Oils
- Lubricating Oils/Engine Oils
- Petroleum Additives (Examples: Corrosion Inhibitor/Lubricity Improvers, Anti-static Additives, Antioxidants, Metal Deactivators, Fuel System Icing Inhibitors, Detergents, Cetane Improvers, Pour Point Depressants/Flow Improvers)

In addition all laboratories shall be capable of performing or providing state-of-the-art qualitative and quantitative elemental analyses of fuels and related materials to include but limited to the following:

- Gas Chromatography/ Mass Spectrometry (GC-MS)
- Thin-layer liquid Chromatography (TLC)
- High-Performance Liquid Chromatography (HPLC)
- Atomic Absorption Analysis (AA)
- X-Ray Fluorescence
- X-Ray Spectroscopy
- Nuclear Magnetic Resonance (NMR) Analysis

• Hazardous Materials analysis per the Environmental Protection Agency's SW-846: **Test Methods for Evaluating Solid Waste**

3. METHODOLOGY.

As a problem or incident arises that requires a prompt, timely answer or resolution, laboratories under contract may be contacted in one of two ways:

a. If all laboratories are known to have equal capabilities in addressing the case and developing a resolution, each will be contacted and given a summary of the occurrence. Each laboratory will prepare and submit, within two working days, a written proposal on their approach to working the case, to include initial assessments, proposed analyses, approximate completion time and estimated cost. DESC will chose the laboratory based on which proposal presents the best approach overall using the aforementioned factors. Each laboratory may be asked to make changes in their proposals by DESC before final selection is made. The chosen laboratory will develop its proposal into a formal task guide if necessary for DESC to refer to throughout the course of the work performed.

b. If one laboratory is readily known to have capabilities unique to addressing the problem or incident, that facility will be contacted outright and with a summary of the occurrence, and will be prompted to submit a proposal as in a. above. The laboratory may be asked to make changes in its proposal and develop it into a formal task guide for DESC to refer to throughout the course of the work performed.

In both cases above, written confirmation of the final testing plan will be provided by DESC.

Samples will be forwarded by the most expeditious means to the selected laboratory. The samples will be accompanied by all pertinent information available. Initial contact (telephonic or electronic mail) will establish the type and amount of samples required. Throughout the planning stages and during the actual testing program DESC will maintain close telephonic contact to permit quick response and consultation as events develop and results are obtained. The agreed upon testing program may be modified during the course of analysis, based on test results. Assistance may be required by DESC with collecting samples and performing on-site investigation. The DESC Product Technology and Standardization Division (DESC-BP) personnel who administer the testing program will be the coordination point within DESC, providing liaison with field activities, U.S. Military Services and DoD Headquarters' personnel.

While some testing may be routine in nature, it is understood that in much of the work to be performed under this program, time is a critical factor. DESC will identify those samples that require immediate analysis because of operational or economic impact. On samples so identified, every effort will be made to provide results to DESC as soon as possible.

4. REPORTS AND DELIVERABLES. Test results will be provided to DESC telephonically or by electronic mail as soon as they are available. If the task is expected to take one month or longer to complete, written weekly updates will be provided. A complete written report of the findings will be submitted to DESC within one week after completion of analysis of each sample or set of samples.

For tasks or testing programs that are expected to be several months in duration, a report detailing the direction and status of the ongoing work will be provided to DESC on a monthly basis. The report shall include the previous month's expenditures for each tasking, total expenditures to date, and anticipated additional funding needs with justification.

5. MEETINGS AND DISCUSSIONS. If deemed necessary, representatives of DESC and laboratory personnel performing specific work will have discussions to review and if necessary revise the scope of the work being performed for DESC. Such discussions may take place through actual meetings at either the laboratory's facilities or at DESC; or via telephone conferences should that method prove sufficient.